30. (New) A method as in claim 23, wherein the target molecule is an aptamer.

31. (New) A method as in claim 23, wherein the target molecule is a metal ion.

32. (New) A method as in claim 23, wherein the catalytically active RNA comprises a hairpin ribozyme.

33. (New) A method as in claim 23, wherein the catalytically active RNA comprises a hammerhead ribozyme.

34. (New) A method as in claim 23, wherein the catalytically active RNA catalyzes both cleavage and ligation of nonadjacent substrates that are both bound to the target.

35. (New) A method as in claim 23, wherein the catalytic activity of the catalytically active RNA comprises cleavage of a capture probe which is bound to the target and ligation of two replicase probes which are bound to the target.

36. (New) A method as in claim 23, wherein the catalytic activity of the catalytically active RNA comprises cleavage of a capture probe which is bound to the target, said method further comprising ligation by the catalytically active RNA of two replicase probes which are not bound to the target.

37. (New) A method as in claim 23, wherein the substrate is the catalytically active RNA and the reaction catalyzed by the catalytically active RNA is autocatalysis.

38. (New) A method as in claim 23, wherein the substrate is a capture probe comprising a polynucleotide sequences that are complementary to both the target sequence and a substrate sequence for the catalytically active RNA.

39. (New) A method as in claim 38, wherein the capture probe is bound to a solid support.

40. (New) A method as in claim 39, wherein a portion of the capture probe is released from the solid support upon cleavage of the substrate sequence by the catalytically active RNA.

41. (New) A method as in claim 40, wherein the capture probe further comprises a terminal biotinylated nucleotide.

42. (New) A method as in claim 41, wherein the solid support comprises streptavidin-coated particles.

43. (New) A method as in claim 42, wherein the particles comprise a magnetic material.

44. (New) A method as in claim 25, wherein the substrate comprises two RNA replication probes, wherein each replication probe comprises a sequence that can serve as a substrate for Qβ replicase only when both replication probes are ligated together.

45. (New) A method as in claim 44, wherein the catalytically active RNA catalyzes ligation of the two replication probes to each other.

46. (New) A method as in claim 45, further comprising the step of freezing the composition.

47. (New) A method as in claim 45, further comprising the step of adding at least about 40% ethanol to the composition.

48. (New) A method as in claim 45, wherein detection of the target comprises amplification of the ligated replication probes by Qβ replicase.

49. (New) A method as in claim 48, further comprising the presence of an intercalating fluorescent dye and detection of the Qβ replicase reaction products by observation of the change in fluorescence.